

- Reply to Office Action dated February 1, 2010

Amendments to the Specification:

Please add, beginning on page 6, between lines 21 and 22, the following new paragraph.

Figure 6 shows an embodiment of a method of computing a Fast Fourier Transform or Inverse Fast Fourier Transform in a multiprocessor system.

Please add, beginning on page 6, between lines 19 and 20, the following new paragraph.

In one embodiment, a linear scalable method for computing a Fast Fourier Transform (FFT) or Inverse Fast Fourier transform (IFFT) in a multiprocessor system using a decimation in time approach, comprises the steps of: computing first and second stages of $\log_2 N$ stages of an N-point FFT/IFFT as a single radix-4 butterfly operation while implementing the remaining $(\log_2 N - 2)$ stages using radix-2 butterfly operations, wherein each radix-2 butterfly operation employs a single radix-2 butterfly computation loop without employing nested loops; and distributing the butterfly operations in each stage such that each processor computes an equal number of complete butterfly operations thereby eliminating data interdependency in the stage. In one embodiment, said step of distributing butterfly operations is implemented by assigning to each processor of the multi-processor system respective addresses of memory locations corresponding to inputs and outputs required for each specific butterfly operation assigned to the processor.

Please add, beginning on page 8 between lines 25 and 26, the following new paragraph.

Figure 6 shows an embodiment of a method 600 of computing a Fast Fourier Transform or Inverse Fast Fourier Transform in a multiprocessor system. The method comprises a step 610 of computing first and second stages of an N-Point FFT/IFFT. This is followed by a

single, un-nested loop 615 having a step 620 of distributing the butterfly operations in a stage of the remaining stages such that each processor computes an equal number of complete butterfly operations thereby eliminating data interdependency in the stage, and a step 630 of computing the stage of the remaining stages.